USEFUL FOR UNIVERSITY EXAMS, GATE, NET AND OTHER CS EXAMS

DATABASE MANAGEMENT SYSTEM

PROPER NOTES IN PPT FORM

DATA INDEPENDENCE

PART -6



Data Independence

- Data independence can be explained using the three-schema architecture.
- Data independence refers characteristic of being able to modify the schema at one level of the database system without altering the schema at the next higher level.
- We know the main purpose of the three levels of data abstraction is to achieve data independence. If the database changes and expands over time, it is very important that the changes in one level should not affect the data at other levels of the database. This would save time and cost required when changing the database.

Logical Data Independence

- Logical data independence refers characteristic of being able to change the conceptual schema without having to change the external schema.
- Logical data independence is used to separate the external level from the conceptual view.
- If we do any changes in the conceptual view of the data, then the user view of the data would not be affected.
- Logical data independence occurs at the user interface level.
- The changes in the logical level may include −

  Change the data definition.

  Adding, deleting, or updating any new attribute, entity or relationship in the database.

Physical Data Independence

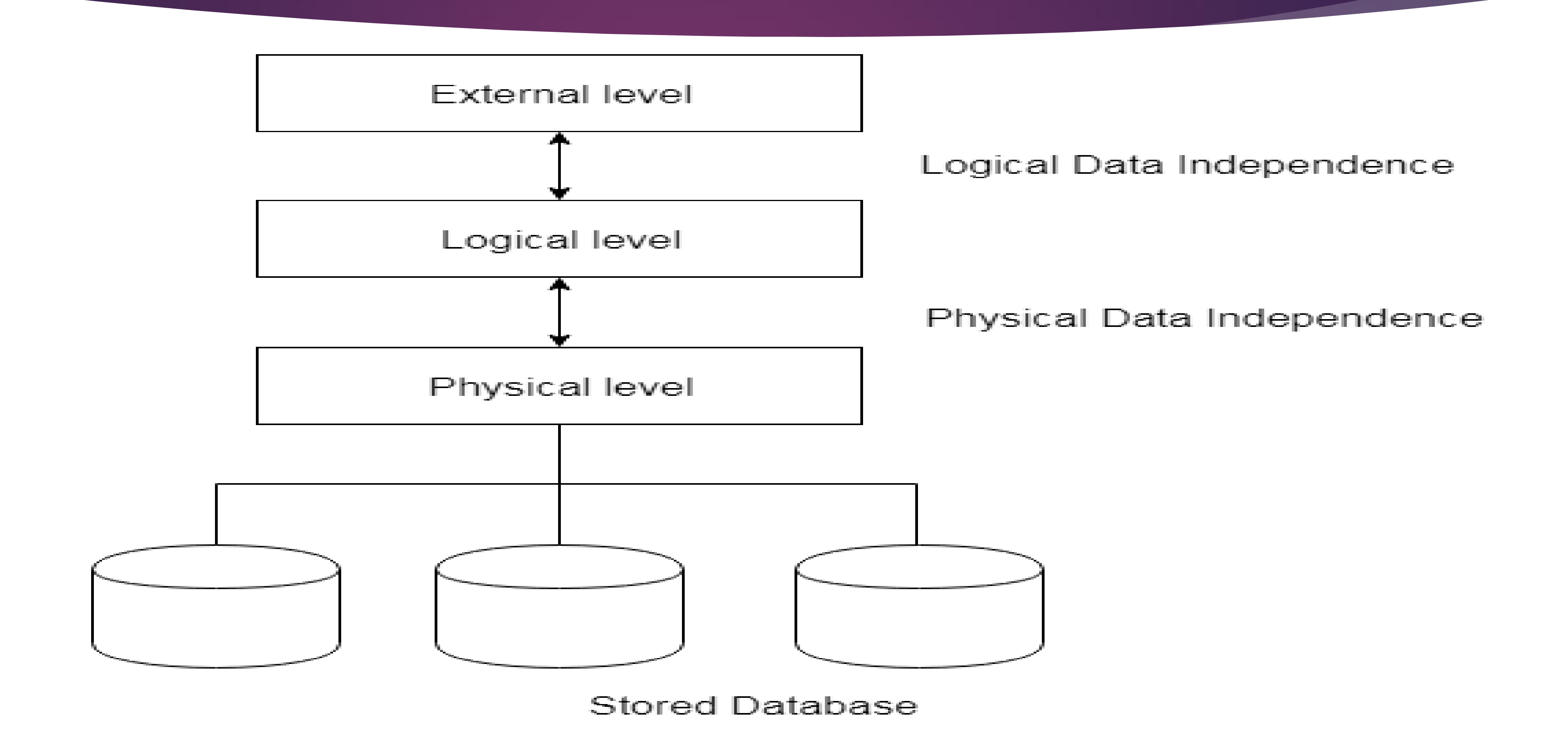
- Physical data independence can be defined as the capacity to change the internal schema without having to change the conceptual schema.
- If we do any changes in the storage size of the database system server, then the Conceptual structure of the database will not be affected.
- Physical data independence is used to separate conceptual levels from the internal levels.
- Physical data independence occurs at the logical interface level.
- The changes in the physical level may include changes using the following –

  A new storage device like magnetic tape, hard disk, etc.

  A new data structure for storage.

  A different data access method or using an alternative files organization technique.

  Changing the location of the database.


External level
Logical Data Independence
Logical level
Physical Data Independence
Physical level
Stored Database

THANK YOU

